

Remarks begin on page 6 of this paper.

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-19. (Canceled)

20. (Currently Amended) A composition ~~for ion channel transfer which comprises comprising~~ a mesenchymal stem cell incorporated with a nucleic acid which encodes a hyperpolarization activated, cyclic nucleotide gated 2 (HCN2) ion channel in an amount ~~effective sufficient~~ to create an ion channel in the cell.

21-48. (Canceled)

49. (Currently Amended) A method of expressing a functional ion channel in a syncytial structure comprising: (1) preparing the composition of claim 20; and (2) ~~administering site-specifically introducing the composition to~~ into the syncytial structure.

50. (Previously Presented) The method of claim 49, wherein the syncytial structure is a mammalian heart.

51. (Currently Amended) A method of treating a cardiac rhythm disorder in a ~~subject mammal, wherein the disorder is at least one of conduction block, complete atrioventricular block, incomplete atrioventricular block or sinus node dysfunction,~~ which ~~method comprises contacting a cell of the heart of the subject with site-specifically introducing into the mammal's heart~~ the composition of claim 20 in an amount ~~effective sufficient~~ to increase pacemaker current expression ~~of the cell at the site~~, thereby treating

the rhythm disorder in the subject mammal.

52-55. (Canceled)

56. (Currently Amended) The method of claim 55 51, wherein the step of administration is effected composition is introduced by topical application to the cells of the structure heart, microinjection injection, or catheterization.

57. (Currently Amended) A method of inducing a pacemaker current in a subject's mammal's heart which comprises contacting a cell of site-specifically introducing into the heart with the composition of claim 20 in an amount effective sufficient to induce a pacemaker current in the cell of the heart, thereby inducing a pacemaker current in the heart.

58. (Canceled)

59. (Currently Amended) A method of inducing a pacemaker current in a cell which comprises contacting the cell with the composition of claim 20 in an amount effective sufficient to induce a pacemaker current in the cell, thereby inducing a pacemaker current in the cell.

60-64. (Canceled)

65. (New) A composition for delivering a pacemaker current to a syncytial structure comprising a mesenchymal stem cell incorporated with a nucleic acid which encodes a hyperpolarization activated, cyclic nucleotide gated 2 (HCN2) ion channel in an amount sufficient to create an ion channel in the cell and deliver a pacemaker current when site-specifically introduced into the syncytial structure.

66. (New) A method of inducing a pacemaker current in a mammal's heart which comprises site-specifically introducing into the heart the composition of claim 20 in an amount

sufficient to increase a pacemaker current in the heart, thereby inducing a pacemaker current in the heart.

67. (New) A method of inducing a pacemaker current in a cell which comprises contacting the cell with the composition of claim 20 in an amount sufficient to increase a pacemaker current in the cell, thereby increasing a pacemaker current in the cell.